billions of humans in case she gets pregnant. But while the Bayesian calculus is sound, this line of reasoning is not. Since Eve and Adam *know* that they are the first two humans, learning whether or not there are billions of others does not change their belief that they are the first humans. This background knowledge spoils the applicability of the self-sampling assumption, and they cannot be considered a random sample. When Bostrom later discusses the reference class problem, i.e. the difficulty of choosing an adequate reference class, he admits that the background knowledge of the observer is intimately linked with the choice of reference class. Thus, the problem that Bostrom solves, or attempts to solve, almost inverts: rather than calculating probabilities of hypotheses in the light of some biased observational evidence from some mechanically established reference class, one starts out from intuitively given probabilities and infers back the corresponding reference class and its stability under varying probability distributions.

Chapters 10 and 11 present a general theory of OSE, including a reformulation of the self-sampling assumption. The author discusses, but does not solve, the reference class problem and its relation to indexical information. Unfortunately, he only offers a rather sketchy account of these issues, which are of high interest to the reader with a systematic inclination. Apart from the insufficiently explicated and thus somewhat obfuscated mathematical reasoning in these two chapters, Bostrom presents a highly readable and widely relevant work which can be warmly recommended to everyone in philosophy of science. The book has an associated website (www.anthropic-principle.com) where one can find an abundance of scholarly resources regarding anthropic reasoning, the Doomsday argument, and some other philosophical conundrums. Bostrom's book has appeared in the Studies in Philosophy: Outstanding Dissertations series edited by the late Robert Nozick. Just a few pages into the volume, and the reader learns why.

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Bryan G. Norton, ***Searching for Sustainability: Interdisciplinary Essays in the Philosophy of Conservation Biology.*** New York: Cambridge University Press (2003), viii + 554 pp., $30.00 (paper).

This anthology collects 27 essays published since 1988 by Bryan Norton, whose early books set much of the agenda and a higher standard of argumentation for environmental ethics (Norton 1987, 1991). Reflecting his longstanding participation in environmental policy formation with the Environmental Protection Agency and his position in a public policy

school, conservation scientists and environmental policy makers constitute the original audience of these essays; few were originally published in philosophical venues. Norton addresses a diverse set of issues that include: the pragmatism of Thoreau and Aldo Leopold, anthropocentrism vs. nonanthropocentrism concerning environmental values, the relationship between economics, ecosystem valuation, and environmental policy, and the role of spatiotemporal scale in environmental management and policy formation. Given their ambitious scope, the essays are only loosely unified as a search for a better understanding of the concept of sustainability.

For philosophers of science, Norton's discussions of issues of spatiotemporal scale in ecosystem valuation and the value-ladeness of conservation science are the most interesting. This discussion, however, exhibits a major weakness. Norton's conceptual analysis is often not specific or clear enough to be philosophically illuminating. Consider, for instance, the only explicit definition of sustainability presented in the anthology: a relationship between economic and ecological systems such that ''(a) human life can continue indefinitely; (b) human individuals can flourish; (c) human cultures can develop; but in which (d) effects of human activities remain within bounds so as not to destroy the health/integrity of the environmental context of human activities'' (177). Norton does not elucidate the vague notions of individual flourishing or cultural development and the reader can only speculate about the relationship between (b) and (c). Identifying 'integrity of the environmental context' with 'ecosystem integrity,' Norton attempts to illuminate (d) by defining the latter as the maintenance of a region's gamma diversity that has ''held sway historically'' and the ''autonomous processes'' that maintain this diversity (178). Leaving aside the question of what definition of gamma diversity Norton has in mind (Huston 1994) and Norton's problematic ''operational definition'' of 'autonomous' as that which ''allows self-organization'' (177), Norton is not explicit about what historical benchmark is appropriate. Similar to the contentious problem of what historical period restoration ecologists should restore to (Callicot 2002), Norton's omission skirts the question of what temporal period conservationists should use to assess ecosystem integrity. The similar definition of 'ecological integrity of a place' in another essay is no more helpful (491).

Norton's use of ''hierarchy theory'' exhibits the same lack of clarity and specificity. His attention to hierarchy theory is motivated by its focus on spatiotemporal scale (Allen and Starr 1982, O'Neill et. al. 1986). This focus is critical since (i) an adequate understanding of ecosystems requires careful consideration of the spatiotemporal scale(s) at which they have been and should be studied (Levin 1992); (ii) an adequate understanding of ecosystems is crucial to successfully addressing environmental problems;

and (iii) conservation biologists have paid insufficient attention to (i). It is unclear, however, that anything approaching a scientific hierarchy *theory* has emerged from this work or, as Norton (282) claims, that it represents ''a new and highly promising theoretical approach'' (Sarkar 1984, Ellner 1987, Ricklefs 1987). For instance, the ''descriptive axioms'' of hierarchy theory that Norton suggest: ''(1) that all observation must be from some point inside the hierarchically organized system that is being measured and (2) that smaller subsystems within the hierarchy change at a slower pace that represents a quantum difference from the pace of change in the larger system in which it is embedded–its environment'' (317) only dimly illuminate the concept of a hierarchy and contribute little to a better comprehension of (i). The second axiom (2) is also inconsistent with the claim, made in most of the works devoted to hierarchy theory and made by Norton at other places (65, 214, 229, 282), that smaller subsystems usually change at a more rapid rate than the larger systems that contain them.

Conservation biology is a relatively young science, and it is only beginning to receive the philosophical attention it merits. As part of the distinguished Cambridge Studies in Philosophy and Biology series, this anthology makes an important contribution towards securing the recognition conservation biology deserves within the philosophy of biology. Given the subtitle, however, it is surprising that Norton scarcely discusses conservation *biology* as a biological science. The essays do not address the epistemological and methodological issues that arise in the modeling of population viability, the prediction of species distributions based on habitat type or other environmental parameters, the prioritization of places based on biodiversity content, or the role ecological theories should or should not play in the science of reserve network design. Since his primary goal is to, ''contribute to a better understanding of the complex process by which environmental policy is proposed, modified, and implemented'' (1), Norton's anthology is more accurately subtitled as essays in the philosophy of environmental policy formation and ecosystem evaluation.

For topics more remote from the philosophy of science, Norton displays an acute sensitivity to philosophical problems and a thorough practical knowledge of the realities of environmental policy formation and ecosystem valuation. Norton's critical analysis of nonanthropocentrism (essays 3, 21) and attempts to value ecosystems monetarily (essays 10–14, 23), as well as his interpretation of Thoreau and Leopold as pragmatic thinkers (essays 1–3, 5, 8) leaves little to be desired. He demonstrates, for instance, the impotency of nonanthropocentric environmental ethics in contexts where it should matter the most, environmental policy formation and ecosystem valuation (essay 3). With the same eloquence as his earlier books, Norton vividly exploits well-chosen examples to illustrate his

arguments. Despite its weaknesses, Norton's anthology provides a valuable, and currently rare, resource for environmental philosophy.

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John Stachel, ***Einstein from 'B' to 'Z'.*** Einstein Studies, vol. 9. Boston: Birkhäuser (2002), xi + 556 pp., $69.95 (cloth).

John Stachel was the founding editor of the *Collected Papers of Albert Einstein* and is among the world's most knowledgeable experts on Einstein. When he dared to publish a collection of essays under the title *Einstein from 'B'to 'Z,'* he must have had his tongue in cheek. The 'A' is left out to indicate that the volume does not exhaust all aspects of Einstein's life and work. It is also possible to find some idiosyncratic biases in the book. Nevertheless, this collection of 37 essays written over the past 25 years gives a surprisingly comprehensive and balanced picture of Einstein.

The first chapter on the "Human Side" contains some short, authoritative biographical overviews as well as topical discussions, e.g. on Einstein's Jewish identity. These biographical pieces, although few in number, suggest that Einstein's political awareness and his standpoints on social issues are dearest to Stachel's heart. But with all his sympathy for Einstein, he is very careful not to give in to hagiographic temptations. It is no accident that Stachel also included a chapter on his involvement in "Editing the Einstein Papers." It is his credo that any Einstein scholarship must be grounded on the critical and comprehensive evaluation of all available documentary evidence.